

REMARKS

Claims 19, 21, 26-29, and 37-50 are pending. This Amendment amends claims 19, 21, 26, 27, 29, 37, and 40, cancels claims 20, 22-25, and 30-33 and adds new claims 41-50.

This Amendment encloses an excess Claim fee payment for one (1) excess independent Claim.

Claim Rejection under 35 U.S.C. §112

The Office Action rejects claim 40 under 35 U.S.C. §112, second paragraph, as allegedly being incomplete for omitting essential elements, such omission amounting to a gap between the elements. (MPEP § 2172.01). Applicants respectfully traverse this rejection.

“If the scope of the claimed subject matter can be determined by one having ordinary skill in the art, a rejection under 35 U.S.C. § 112, second paragraph, is not appropriate.” M.P.E.P. § 706.03(d). “The essential inquiry pertaining to the requirement under 35 U.S.C. § 112, second paragraph, is ‘whether the claims set out and circumscribe a particular subject matter with a reasonable degree of clarity and particularity.

Definiteness of claim language must be analyzed, not in a vacuum, but in light of: (A) the content of the particular application disclosure; (B) the teachings of the prior art; and (C) the claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made.” M.P.E.P. § 2173.02.

This Amendment amends claim 40 to define more clearly the features of the invention. Claim 40 is clear and definite because the ordinarily skilled artisan would know and understand the meaning of the phrase “*said lever device converts movement of said linen treatment device to translational movement at said sensor*” as recited in claim 40, in view of the specification.

The specification explains a lever device that converts movement of the linen treatment device to translational movement at the sensor, including an exemplary embodiment of the elements that may form the lever device. (Page 8, lines 1-16). Applicants respectfully submit that claim 40 sets out and circumscribes the particular subject matter of the lever device with a reasonable degree of clarity and particularity such that one of ordinary skill in the art would know and understand the claimed invention in view of the specification.

For at least these reasons, claim 40 is clear and definite. Applicants respectfully request withdrawal of this rejection.

The Claimed Invention

The specification explains that tumbling imbalances, i.e., imbalances in the direction of the axis of rotation of the drum, cannot be measured by means of a conventional tacho-generator. In contrast, the claimed invention can efficiently measure such tumbling imbalances. (Page 2, lines 10-23).

In particular, to solve the aforementioned problems, independent claim 19 recites a linen treatment device including an arrangement for determining the imbalance of the device, which includes a sensor and a lever device. The sensor is coupled to a soapy water container of the linen treatment device by the lever device. The sensor measures the temperature profile of a heating device built into the sensor. The temperature profile is altered by the acceleration caused by an imbalance of the device.

Independent claim 29 recites a household device including a sensor for measuring the temperature profile of a heating device built into the sensor, and a lever device, the sensor coupled to a container of the household device by the lever device. The temperature profile is altered by the location of the container of the household device relative to the direction of the vector of the acceleration due to gravity.

The specification explains, with reference to the exemplary embodiment in Figs. 3 and 4, that the arrangement converts rotational movement of the lever to a translational movement in the direction of a path such that, if the soapy water container is accelerated

downwards as a result of the imbalance or by the loading of the soapy water container, the downward acceleration is converted via the lever into a horizontal acceleration along the path. The specification further explains that the exemplary arrangement measures the acceleration values, which can then be used to determine both the mass of the washing and any imbalance of the drum during operation. The exemplary arrangement is suitable both for static and for dynamic measurements. (Page 8, lines 1-16; and page 10, lines 1-6; and Figs. 3 and 4).

The Smith et al. Reference in view of the Bugnacki Reference

The Office Action rejects claims 19-21, 29, and 37-40 under 35 U.S.C. § 103(a) as allegedly being obvious over the Smith et al. reference (U.S. Pat. No. 5,685,038) in view of the Bugnacki reference (M. Bugnacki et al., "A Micromachined Thermal Accelerometer for Motion, Inclination, and Vibration Measurement," Sensors, June 2001, pp. 98-104, vol. 18, no. 6). Applicants respectfully traverse this rejection.

Independent claims 19 and 29:

With respect to independent claims 19 and 29, the Office Action alleges that the Smith et al. reference discloses a sensor 32 coupled to a washing machine tub via a lever device 46. The Office Action asserts that it would have been obvious to substitute the temperature profile sensor of the Bugnacki reference for the sensor 32 of the Smith et al. reference. (Pages 3 and 5.)

A. Applicants respectfully submit that the ordinarily skilled artisan would not have been motivated to combine the Smith et al. reference and the Bugnacki reference in the manner alleged in the Office Action.

"Office personnel must determine whether the claimed invention would have been obvious to one of ordinary skill in the art [...] after consideration of all the facts. [...]"
"Ascertaining the differences between the prior art and the claims at issue requires interpreting the claim language, and considering both the invention and the prior art

references as a whole. [...] In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious.” (M.P.E.P. § 2141.02(I)).

The Smith et al. reference discloses a sensor (out-of-balance control) 32 that includes the alleged lever device 46 (pivot arm). A weight 56 is formed on an end of the alleged lever device 46. The alleged lever device 46 functions as a pendulum to swing the weight 56 from a rest position (I) to an activation position (II) to activate a switch 74. (Col. 3, line 56 to col. 4, line 32.) When the weight 56 swings to the activation position (II), it strikes a pivoting armature 76 that activates the switch 74 to open a circuit and prevent operation of the drive motor and transmission unit 24 of the washing machine. In addition, the switch 74 normally shunts the coil 82 when it is closed. When the switch 74 is open, the switch 74 causes current to flow through the electromagnetic coil 82, thereby attracting the pivoting armature 76 to the coil 82 and causing the pivoting armature 76 to vibrate, which causes a buzzing sound to alert the user of the washing machine 10 that the washing machine 10 needs to be reset because of an unbalanced load. (Col. 6, lines 29-55.)

In contrast, the Bugnacki reference merely teaches a temperature profile sensor (a micromachined thermal accelerometer) having only one moving element: a tiny bubble of heated air hermetically sealed inside the sensor package cavity. The Bugnacki reference alleges that such a temperature profile sensor reduces system cost, size, and complexity. (Summary.)

When the applied references are properly considered as a whole, the ordinarily skilled artisan clearly would not have been motivated to combine the alleged lever device 46 of the Smith et al. reference, which a pivot arm that functions as a pendulum, with the temperature profile sensor of the Bugnacki reference, since there would be no reason to provide a the alleged lever device 46 (pivot arm) with the temperature profile sensor of the Bugnacki reference. Indeed, the Office Action fails to establish any reasons for selectively combining only the alleged lever device 46 of the Smith et al. reference with

the temperature profile sensor of the Bugnacki reference, or for that matter, how the alleged lever device 46 of the Smith et al. reference would be combined with the temperature profile sensor of the Bugnacki reference. Moreover, when considered as a whole, the Bugnacki reference teaches reducing the complexity of the system, and thus, clearly teaches away from the alleged combination of the Smith et al. reference and the Bugnacki reference because such a combination would add additional moving elements, such as the lever device 46, to the temperature profile sensor and result in an increase in the complexity of the system.

B. Applicants respectfully submit that the Office Action fails to establish a *prima facie* case of obviousness.

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, or require a substantial reconstruction and redesign of the elements shown in the primary reference as well as a change in the basic principle under which the primary reference construction was designed to operate, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. (M.P.E.P. § 2143.01(VI)).

The teachings of the references are not sufficient to render independent claims 19 and 29 *prima facie* obvious because the alleged combination of only the alleged lever device 46 of the Smith et al. reference with the temperature profile sensor of the Bugnacki reference would either (1) change the principle of operation of the Smith et al. reference, or (2) require a substantial reconstruction and redesign of the elements shown in the Smith et al. reference as well as a change in the basic principle under which the Smith et al. reference construction was designed to operate.

The alleged lever device 46 (pivot arm) of the Smith et al. reference clearly functions as a pendulum to swing the weight 56 from a rest position (I) to an activation position (II) to activate a switch 74 and shut off the drive motor and transmission unit 24 of the washing machine. The alleged combination, in which the lever device 46 is used to couple the temperature profile sensor of the Bugnacki reference to the washing

machine tub instead of being used as a pendulum, clearly would either (1) change the principle of operation of the Smith et al. reference, or (2) require a substantial reconstruction and redesign of the elements shown in the Smith et al. reference as well as a change in the basic principle under which the Smith et al. reference construction was designed to operate. Thus, the teachings of the references are not sufficient to render the claims *prima facie* obvious.

C. Even assuming in *arguendo* that the ordinarily skilled artisan would have been motivated to modify the Smith et al. reference in view of the Bugnacki reference, or that a *prima facie* case of obviousness had been established, Applicants respectfully submit that the hypothetical combination of the Smith et al. reference and the Bugnacki reference clearly would not result in the arrangement of the claimed invention.

Particularly, the hypothetical combination of the Smith et al. reference and the Bugnacki reference clearly fails to teach or suggest at least an “*arrangement including a sensor and a lever device, said sensor coupled to a soapy water container of said linen treatment device by said lever device*” as recited in claim 19. Additionally, the hypothetical combination of the Smith et al. reference and the Bugnacki reference clearly fails to teach or suggest “*a sensor [and] a lever device, said sensor coupled to a container of said household device by said lever device*” as recited in Claim 29.

In contrast to the assertions in the Office Action, the alleged substitution of the temperature profile sensor of the Bugnacki reference for the sensor 32 of the Smith et al. reference clearly would result in replacing the whole sensor 32 of the Smith et al. reference, including the alleged lever device 46, with the temperature profile sensor of the Bugnacki reference. As set forth above, the alleged lever device 46 (pivot arm) of the Smith et al. reference functions as a pendulum to swing the weight 56 from a rest position (I) to an activation position (II) to activate a switch 74 and shut off the drive motor and transmission unit 24 of the washing machine. The alleged lever device 46 clearly is an integral element of the sensor 32 and has no purpose outside of, or independent from, the sensor 32. (Col. 4, lines 3-11; and Figs. 2-6).

Hence, the hypothetical combination of the Smith et al. reference and the Bugnacki reference clearly would result in replacing the whole sensor 32 of the Smith et al. reference with the temperature profile sensor of the Bugnacki reference. The hypothetical combination would not reasonably include the alleged lever device 46.

The hypothetical combination of the Smith et al. reference and the Bugnacki reference clearly fails to teach or suggest at least an “*arrangement including a sensor and a lever device, said sensor coupled to a soapy water container of said linen treatment device by said lever device*” as recited in claim 19. Additionally, the hypothetical combination of the Smith et al. reference and the Bugnacki reference clearly fails to teach or suggest “*a sensor [and] a lever device, said sensor coupled to a container of said household device by said lever device*” as recited in Claim 29.

For these and other reasons, the Smith et al. reference and the Bugnacki reference, either individually or in combination, do not disclose or suggest the subject matter defined by independent claims 19 and 29. Applicants respectfully request withdrawal of this rejection.

Dependent claims 20, 21, and 37-40:

Claims 20, 21, and 37-40 depend from Claim 19 and are allowable for the same reasons and also because they recite additional patentable subject matter. Applicants respectfully traverse this rejection.

Claim 20:

This Amendment cancels claim 20 without prejudice or disclaimer. Applicants respectfully request withdrawal of this rejection.

Claim 21:

The hypothetical combination of the Smith et al. reference and the Bugnacki reference clearly would result in replacing the whole sensor 32 of the Smith et al.

reference with the temperature profile sensor of the Bugnacki reference. The hypothetical combination would not reasonably include the alleged lever device 46.

For these and other reasons, the hypothetical combination of the Smith et al. reference and the Bugnacki reference fails to teach or suggest that the *“lever device is connected to said soapy water container”* as recited in claim 21. Applicants respectfully request withdrawal of this rejection.

Claims 37 and 38:

The Office Action alleges that the alleged lever devices 46 and 76 and springs 64 and 84 of the Smith et al. reference disclose the features of claims 37 and 38. (Office Action, Page 6, first full paragraph).

Applicants respectfully submit that the hypothetical combination of the Smith et al. reference and the Bugnacki reference clearly fails to teach or suggest that *“said lever device includes a first lever arm coupled to said linen treatment device and a fulcrum, a second lever arm coupled to said fulcrum and a hinge joint, and a rail coupled to said hinge joint, said sensor mounted to said rail”* as recited in claim 37, or that *“said second lever arm is pivotable about said fulcrum”* as recited in claim 38.

First, the hypothetical combination of the Smith et al. reference and the Bugnacki reference clearly would result in replacing the whole sensor 32 of the Smith et al. reference with the temperature profile sensor of the Bugnacki reference. The hypothetical combination would not reasonably include the alleged lever devices 46 and 76, which are integral elements of the sensor 32.

Second, in contrast to the assertions in Office Action, the alleged lever devices 46 and 76 of the Smith et al. reference are separate levers, not lever arms of the same lever. The alleged lever devices 46 and 76 also do not pivot about the same fulcrum, as alleged in the Office Action. Instead, Figs. 2, 3, and 5 clearly show that a first end of the alleged lever device 46 has fingers 50 that are received in the notches 54 of the bottom wall 44 of the sensor 32. A second end of the alleged lever device 46, which has a weight 56, is free to pivot about the fulcrum of the grooves 52. (Col. 4, lines 16-17). In contrast, Figs. 2, 3,

and 5 clearly show that a first end of the alleged lever device 76 (pivoting armature) pivots about a completely different fulcrum (at spring 84) than the fulcrum of the grooves 52. (Col. 6, lines 29-37).

The hypothetical combination of the Smith et al. reference and the Bugnacki reference clearly fails to teach or suggest that “*said lever device includes a first lever arm coupled to said linen treatment device and a fulcrum, a second lever arm coupled to said fulcrum and a hinge joint, and a rail coupled to said hinge joint, said at least one sensor mounted to said rail*” as recited in claim 37, or that “*said second lever arm is pivotable about said fulcrum*” as recited in claim 38.

Third, both the Smith et al. reference and the Office Action are completely silent with respect to a teaching of a hinge joint, as claimed.

Fourth, in contrast to the assertions in the Office Action, the alleged rail 44 of the Smith et al. reference clearly is an integral part of the sensor 32. (Col. 3, lines 56-66; Figs. 2, 3, and 5). The sensor 32 clearly is not mounted to the rail 44.

For these and other reasons, the hypothetical combination of the Smith et al. reference and the Bugnacki reference clearly fails to teach or suggest that “*said lever device includes a first lever arm coupled to said linen treatment device and a fulcrum, a second lever arm coupled to said fulcrum and a hinge joint, and a rail coupled to said hinge joint, said at least one sensor mounted to said rail*” as recited in claim 37, or that “*said second lever arm is pivotable about said fulcrum*” as recited in claim 38.

Applicants respectfully request withdrawal of this rejection.

Claim 39:

The hypothetical combination of the Smith et al. reference and the Bugnacki reference clearly fails to teach or suggest that “*said first lever arm is parallel to a rotational axis of said linen treatment device*” as recited in claim 39.

Fig. 2 clearly shows that both of the alleged lever devices 46 and 76 are biased at an angle with respect to a rotational axis of the alleged linen treatment device 12 by

springs 64 and 84, respectively, and are not parallel to a rotational axis of the alleged linen treatment device 12.

For these and other reasons, the hypothetical combination of the Smith et al. reference and the Bugnacki reference clearly fails to teach or suggest that “*said first lever arm is parallel to a rotational axis of said linen treatment device*” as recited in claim 39. Applicants respectfully request withdrawal of this rejection.

Claim 40:

The hypothetical combination of the Smith et al. reference and the Bugnacki reference clearly fails to teach or suggest that “*said lever device converts movement of said linen treatment device to translational movement at said sensor*” as recited in claim 40.

First, in contrast to the assertions in the Office Action, claim 40 does not merely recite an intended use, and also does not fail to provide adequate structure to further define the claimed linen treatment device. Instead, claim 40 further defines the structural attributes between the interrelated components of the lever device and the sensor. Claim 40 defines that the lever device converts movement of the linen treatment device to translational movement at the sensor. (Page 8, lines 1-16; Figs. 3 and 4).

Second, the Office Action asserts that the Smith et al. reference discloses a sensor 32 with a lever device 46 that allegedly provides sensing along an alleged translation (sic) axis 30, and that these alleged features are capable of performing the features of claim 40. Contrary to the assertions in the Office Action, the sensor 32 clearly does not translate along the longitudinal axis 30. Instead, the sensor 32 is fixed to the motor and transmission unit 24 by an upper mounting plate 34. (Figs. 2 and 3; Col. 3, lines 56-60). The alleged lever device 46 is an integral internal element of the sensor 32 and also does not translate along the longitudinal axis 30.

Both the Smith et al. reference and the Bugnacki reference disclose fixed sensors and are completely silent at least with respect to converting movement of a linen treatment device to translational movement at the sensor, as recited in claim 40.

The hypothetical combination of the Smith et al. reference and the Bugnacki reference clearly fails to teach or suggest that “*said lever device converts movement of said linen treatment device to translational movement at said sensor*” as recited in claim 40. Applicants respectfully request withdrawal of this rejection.

For these and other reasons, the Smith et al. reference and the Bugnacki reference, either individually or in combination, do not disclose or suggest the subject matter defined by claims 20, 21, 26-28, and 37-40. Applicants respectfully request withdrawal of this rejection.

The Youn et al. Reference in view of the Bugnacki Reference and the Smith et al. Reference

The Office Action rejects claims 26-28 under 35 U.S.C. § 103(a) as allegedly being obvious over the Youn et al. reference (U.S. Pat. Pub. No. 2001/0025392) in view of the Bugnacki reference and the Smith et al. Reference. Applicants respectfully traverse this rejection.

Claims 26-28 depend from Claim 19 and are allowable for the same reasons and also because they recite additional patentable subject matter.

Additionally, the hypothetical combination of the Youn et al. reference, the Bugnacki reference, and the Smith et al. reference fails to teach or suggest an “*arrangement including at least one sensor and a lever device, said sensor coupled to a soapy water container of said linen treatment device by said lever device*” as recited in claim 19.

The Youn et al. reference does not cure the deficiencies of the hypothetical combination of the Bugnacki reference and the Smith et al. reference with respect to independent claim 19. Instead, the Youn et al. reference merely teaches a washing machine 100 including a fault sensor 185 and a load sensor 190. (Paragraphs 0035-0036). The Youn et al. reference is silent with respect to an “*arrangement including a*

sensor and a lever device, said sensor coupled to a soapy water container of said linen treatment device by said lever device” as recited in claim 19.

For these and other reasons, the hypothetical combination of the Youn et al. reference, the Bugnacki reference, and the Smith et al. reference, does not disclose or suggest the subject matter defined by claims 26-28. Applicants respectfully request withdrawal of this rejection.

New Claims 41-58

This Amendment adds new claims 41-50. Applicants also submit that the applied references, either alone or in combination, do not teach or suggest the subject matter defined by New Claims 41-58. Therefore, Claims 41-50 are allowable.

CONCLUSION

In view of the above, entry of the present Amendment and allowance of claims 19, 21, 26-29, and 37-50 are respectfully requested. If the Examiner has any questions regarding this amendment, the Examiner is requested to contact the undersigned. If an extension of time for this paper is required, petition for extension is herewith made.

Respectfully submitted,



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